

**BOROUGH OF MOUNT EPHRAIM**

**Ordinance No. 2021-02**

**AN ORDINANCE AMENDING CHAPTER 512, ADOPTING REVISED  
STORMWATER MANAGEMENT CONTROL REGULATIONS FOR THE  
BOROUGH OF MOUNT EPHRAIM IN ACCORDANCE WITH THE TIER A  
MUNICIPAL STORMWATER PERMIT REQUIREMENTS**

WHEREAS, the Borough of Mount Ephraim is required to amend the current Stormwater Control Ordinance to comply with changes made in the NJDEP Stormwater Rules at N.J.A.C. 7:8 adopted March 2, 2020, and

WHEREAS, the provisions of the within ordinance are intended to replace the existing requirements;

NOW, THEREFORE, BE IT ORDAINED by the Mayor and Committee of the Borough of Mount Ephraim, Camden County, New Jersey, as follows:

**ARTICLE VIII  
Requirements and Controls for Major Development**

**§ 512-1. Scope and purpose.**

- A. Flood control, groundwater recharge, and pollutant reduction shall be achieved through the use of stormwater management measures, including green infrastructure Best Management Practices (GI BMPs) and nonstructural stormwater management strategies. GI BMPs and low impact development (LID) should be utilized to meet the goal of maintaining natural hydrology to reduce stormwater runoff volume, reduce erosion, encourage infiltration and groundwater recharge, and reduce pollution. GI BMPs and LID should be developed based upon physical site conditions and the origin, nature and the anticipated quantity, or amount, of potential pollutants. Multiple stormwater management BMPs may be necessary to achieve the established performance standards for water quality, quantity, and groundwater recharge. It is the purpose of this article to establish minimum stormwater management requirements and controls for major development, as defined in § 512-2 of this article.
- B. Applicability.
  - (1) This article shall be applicable to all site plans and subdivisions for the following major developments that require preliminary or final site plan or subdivision review:
    - (a) Nonresidential major developments; and
    - (b) Aspects of residential major developments that are not preempted by the residential site improvement standards at N.J.A.C. 5:21.

(2) This article shall also be applicable to all major developments undertaken by the Borough of Mount Ephraim.

C. Development approvals issued for subdivisions and site plans pursuant to this article are to be considered an integral part of development approvals under the subdivision and site plan review process and do not relieve the applicant of the responsibility to secure required permits or approvals for activities regulated by any other applicable code, rule, act, or ordinance. In their interpretation and application, the provisions of this article shall be held to be the minimum requirements

This article is not intended to interfere with, abrogate, or annul any other ordinances, rule or regulation, statute, or other provision of law except that, where any provision of this article imposes restrictions different from those imposed by any other ordinance, rule or regulation, or other provision of law, the more restrictive provisions or higher standards shall control.

#### **§ 512-2. Definitions.**

A. Unless specifically defined below, words or phrases used in this article shall be interpreted so as to give them the meanings they have in common usage and to give this article its most reasonable application. The definitions below are the same as or based on the corresponding definitions in the Stormwater Management Rules at N.J.A.C. 7:8-1.2.

B. As used in this article, the following terms shall have the meanings indicated:

CAFRA CENTERS, CORES, OR NODES — Those areas with boundaries incorporated by reference or revised by the Department in accordance with N.J.A.C. 7:7-13.16.

CAFRA PLANNING MAP — The geographic depiction of the boundaries for Coastal Planning Areas, CAFRA Centers, CAFRA Cores, and CAFRA Nodes pursuant to N.J.A.C. 7:7E-5B.3.

COMMUNITY BASIN — An infiltration system, sand filter designed to infiltrate, standard constructed wetland, or wet pond, established in accordance with N.J.A.C. 7:8-4.2(c)14, that is designed and constructed in accordance with the New Jersey Stormwater Best Management Practices Manual, or an alternate design, approved in accordance with N.J.A.C. 7:8-5.2(g), for an infiltration system, sand filter designed to infiltrate, standard constructed wetland, or wet pond and that complies with the requirements of this chapter.

COMPACTION — The increase in soil bulk density.

CONTRIBUTORY DRAINAGE AREA— the area from which stormwater runoff drains to a stormwater management measure, not including the area of the stormwater management measure itself.

CORE — A pedestrian-oriented area of commercial and civic uses

serving the surrounding municipality, generally including housing and access to public transportation.

**COUNTY REVIEW AGENCY** — An agency designated by the County Board of Chosen Freeholders to review municipal stormwater management plans and implementing ordinance(s). The county review agency may either be:

- (1) A county planning agency; or
- (2) A county water resource association created under N.J.S.A. 58:16A-55.5, if the ordinance or resolution delegates authority to approve, conditionally approve, or disapprove municipal stormwater management plans and implementing ordinances.

**DEPARTMENT** — The New Jersey Department of Environmental Protection.

**DESIGNATED CENTER** — A state development and redevelopment plan center as designated by the State Planning Commission such as urban, regional, town, village, or hamlet.

**DESIGN ENGINEER** — A person professionally qualified and duly licensed in New Jersey to perform engineering services that may include, but not necessarily be limited to, development of project requirements, creation and development of project design, and preparation of drawings and specifications.

**DEVELOPMENT** — The division of a parcel of land into two or more parcels, the construction, reconstruction, conversion, structural alteration, relocation, or enlargement of any building or structure, any mining excavation or landfill, and any use or change in the use of any building or other structure, or land or extension of use of land, by any person, for which permission is required under the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq. In the case of development of agricultural lands, "development" means: any activity that requires a State permit; any activity reviewed by the County Agricultural Board (CAB) and the State Agricultural Development Committee (SADC), and municipal review of any activity not exempted by the Right to Farm Act, N.J.S.A. 4:1C-1 et seq.

**DISTURBANCE**— The placement or reconstruction of impervious surface or motor vehicle surface, or exposure and/or movement of soil or bedrock or clearing, cutting, or removing of vegetation. Milling and repaving is not considered disturbance for the purposes of this definition.

**DRAINAGE AREA** — A geographic area within which stormwater, sediments, or dissolved materials drain to a particular receiving water body or to a particular point along a receiving water body.

**EMPOWERMENT NEIGHBORHOOD** — A neighborhood designated by the Urban Coordinating Council in consultation and conjunction with the New Jersey Redevelopment Authority pursuant to N.J.S.A. 55:19-69.

**ENVIRONMENTALLY CONSTRAINED AREAS** — The following areas where the physical alteration of the land is in some way restricted, either

through regulation, easement, deed restriction or ownership such as: wetlands, floodplains, threatened and endangered species sites or designated habitats, and parks and preserves. Habitats of endangered or threatened species are identified using the Department's Landscape Project as approved by the Department's Endangered and Nongame Species Program.

**ENVIRONMENTALLY CRITICAL AREAS** — An area or feature which is of significant environmental value, including but not limited to, stream corridors; natural heritage priority sites; habitat of endangered or threatened species; large areas of contiguous open space or upland forest; steep slopes; and wellhead protection and groundwater recharge areas. Habitats of endangered or threatened species are identified using the Department's Landscape Project as approved by the Department's Endangered and Nongame Species Program.

**EROSION** — The detachment and movement of soil or rock fragments by water, wind, ice, or gravity.

**GREEN INFRASTRUCTURE**— A stormwater management measure that manages stormwater close to its source by:

1. Treating stormwater runoff through infiltration into subsoil;
2. Treating stormwater runoff through filtration by vegetation or soil; or
3. Storing stormwater runoff for reuse.

**HUC 14 or HYDROLOGIC UNIT CODE 14** — An area within which water drains to a particular receiving surface water body, also known as a subwatershed, which is identified by a 14-digit hydrologic unit boundary designation, delineated within New Jersey by the United States Geological Survey.

**IMPERVIOUS SURFACE** — A surface that has been covered with a layer of material so that it is highly resistant to infiltration by water.

**INFILTRATION** — The process by which water seeps into the soil from precipitation.

**LEAD PLANNING AGENCY** — One or more public entities having stormwater management planning authority designated by the regional stormwater management planning committee pursuant to N.J.A.C. 7:8-3.2, that serves as the primary representative of the committee.

**MAJOR DEVELOPMENT** — An individual “development,” as well as multiple developments that individually or collectively result in:

1. The disturbance of one or more acres of land since February 2, 2004;
2. The creation of one-quarter acre or more of “regulated impervious surface” since February 2, 2004;
3. The creation of one-quarter acre or more of “regulated motor vehicle surface” since March 2, 2021 {or the effective date of this ordinance, whichever is earlier}; or
4. A combination of 2 and 3 above that totals an area of one-quarter

acre or more. The same surface shall not be counted twice when determining if the combination area equals one-quarter acre or more.

Major development includes all developments that are part of a common plan of development or sale (for example, phased residential development) that collectively or individually meet any one or more of paragraphs 1, 2, 3, or 4 above. Projects undertaken by any government agency that otherwise meet the definition of "major development" but which do not require approval under the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq., are also considered "major development."

**MOTOR VEHICLE** — Land vehicles propelled other than by muscular power, such as automobiles, motorcycles, autocycles, and low speed vehicles. For the purposes of this definition, motor vehicle does not include farm equipment, snowmobiles, all-terrain vehicles, motorized wheelchairs, go-carts, gas buggies, golf carts, ski-slope grooming machines, or vehicles that run only on rails or tracks.

**MOTOR VEHICLE SURFACE** — Any pervious or impervious surface that is intended to be used by "motor vehicles" and/or aircraft, and is directly exposed to precipitation including, but not limited to, driveways, parking areas, parking garages, roads, racetracks, and runways.

**MUNICIPALITY** — Any city, borough, town, township, or village.

**NEW JERSEY STORMWATER BEST MANAGEMENT PRACTICES (BMPs) MANUAL or BMP MANUAL**— the manual maintained by the Department providing, in part, design specifications, removal rates, calculation methods, and soil testing procedures approved by the Department as being capable of contributing to the achievement of the stormwater management standards specified in this chapter. The BMP Manual is periodically amended by the Department as necessary to provide design specifications on additional best management practices and new information on already included practices reflecting the best available current information regarding the particular practice and the Department's determination as to the ability of that best management practice to contribute to compliance with the standards contained in this chapter. Alternative stormwater management measures, removal rates, or calculation methods may be utilized, subject to any limitations specified in this chapter, provided the design engineer demonstrates to the municipality, in accordance with Section IV.F. of this ordinance and N.J.A.C. 7:8-5.2(g), that the proposed measure and its design will contribute to achievement of the design and performance standards established by this chapter.

**NODE** — An area designated by the State Planning Commission concentrating facilities and activities, which are not organized in a compact form.

**NUTRIENT** — A chemical element or compound, such as nitrogen or phosphorus, which is essential to and promotes the development of organisms.

**PERSON** — Any individual, corporation, company, partnership, firm,

association, the Borough of Mount Ephraim or political subdivision of the State of New Jersey, subject to municipal jurisdiction pursuant to the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq.

**POLLUTANT** — Any dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, refuse, oil, grease, sewage sludge, munitions, chemical wastes, biological materials, medical wastes, radioactive substance (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C.

§ 2011 et seq.), thermal waste, wrecked or discarded equipment, rock, sand, cellar dirt, industrial, municipal, agricultural, and construction waste or runoff, or other residue discharged directly or indirectly to the land, groundwaters or surface waters of the state, or to a domestic treatment works. "Pollutant" includes both hazardous and nonhazardous pollutants.

**RECHARGE** — The amount of water from precipitation that infiltrates into the ground and is not evapotranspired.

**REGULATED IMPERVIOUS SURFACE** — Any of the following, alone or in combination:

1. A net increase of impervious surface;
2. The total area of impervious surface collected by a new stormwater conveyance system (for the purpose of this definition, a "new stormwater conveyance system" is a stormwater conveyance system that is constructed where one did not exist immediately prior to its construction or an existing system for which a new discharge location is created);
3. The total area of impervious surface proposed to be newly collected by an existing stormwater conveyance system; and/or
4. The total area of impervious surface collected by an existing stormwater conveyance system where the capacity of that conveyance system is increased.

**REGULATED MOTOR VEHICLE SURFACE**— Any of the following, alone or in combination:

1. The total area of motor vehicle surface that is currently receiving water;
2. A net increase in motor vehicle surface; and/or quality treatment either by vegetation or soil, by an existing stormwater management measure, or by treatment at a wastewater treatment plant, where the water quality treatment will be modified or removed.

**SEDIMENT** — Solid material, mineral or organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water, or gravity as a product of erosion.

**SITE** — The lot or lots upon which a major development is to occur or has occurred.

**SOIL** — All unconsolidated mineral and organic material of any origin.

**STATE DEVELOPMENT AND REDEVELOPMENT PLAN**

**METROPOLITAN PLANNING AREA (PA1)** — An area delineated on the State Plan Policy Map and adopted by the State Planning Commission that is intended to be the focus for much of the state's future redevelopment and revitalization efforts.

**STATE PLAN POLICY MAP** — The geographic application of the State Development and Redevelopment Plan's goals and statewide policies, and the official map of these goals and policies.

**STORMWATER** — Water resulting from precipitation (including rain and snow) that runs off the land's surface, is transmitted to the subsurface, or is captured by separate storm sewers or other sewage or drainage facilities, or conveyed by snow removal equipment.

**STORMWATER MANAGEMENT BASIN** — An excavation or embankment and related areas designed to retain stormwater runoff. A stormwater management basin may either be normally dry (that is, a detention basin or infiltration basin), retain water in a permanent pool (a retention basin), or be planted mainly with wetland vegetation (most constructed stormwater wetlands).

**STORMWATER MANAGEMENT MEASURE** — Any structural or nonstructural strategy, practice, technology, process, program, or other method intended to control or reduce stormwater runoff and associated pollutants, or to induce or control the infiltration or groundwater recharge of stormwater, or to eliminate illicit or illegal nonstormwater discharges into stormwater conveyances.

**STORMWATER RUNOFF** — Water flow on the surface of the ground or in storm sewers, resulting from precipitation.

**STORMWATER MANAGEMENT PLANNING AGENCY** — A public body authorized by legislation to prepare stormwater management plans.

**STORMWATER MANAGEMENT PLANNING AREA** — The geographic area for which a stormwater management planning agency is authorized to prepare stormwater management plans, or a specific portion of that area identified in a stormwater management plan prepared by that agency.

**TIDAL FLOOD HAZARD AREA** — A flood hazard area in which the flood elevation resulting from the two-, 10-, or 100-year storm, as applicable, is governed by tidal flooding from the Atlantic Ocean. Flooding in a tidal flood hazard area may be contributed to, or influenced by, stormwater runoff from inland areas, but the depth of flooding generated by the tidal rise and fall of the Atlantic Ocean is greater than flooding from any fluvial sources. In some situations, depending upon the extent of the storm surge from a particular storm event, a flood hazard area may be tidal in the 100-year storm, but fluvial in more frequent storm events.

**URBAN COORDINATING COUNCIL EMPOWERMENT NEIGHBORHOOD** — A neighborhood given priority access to state resources through the New Jersey Redevelopment Authority.

**URBAN ENTERPRISE ZONES** — A zone designated by the New Jersey Enterprise Zone Authority pursuant to the New Jersey Urban Enterprise

Zones Act, N.J.S.A. 52:27H-60 et seq.

URBAN REDEVELOPMENT AREA — Previously developed portions of areas:

(1) Delineated on the State Plan Policy Map (SPPM) as the Metropolitan Planning Area (PA1), Designated Centers, Cores or Nodes;

(2) Designated as CAFRA Centers, Cores or Nodes;

(3) Designated as Urban Enterprise Zones; and

(4) Designated as Urban Coordinating Council Empowerment Neighborhoods.

WATER CONTROL STRUCTURE — A structure within, or adjacent to, a water, which intentionally or coincidentally alters the hydraulic capacity, the flood elevation resulting from the two-, 10-, or 100-year storm, flood hazard area limit, and/or floodway limit of the water. Examples of a water control structure may include a bridge, culvert, dam, embankment, ford (if above grade), retaining wall, and weir.

WATERS OF THE STATE — The ocean and its estuaries, all springs, streams, wetlands, and bodies of surface or ground water, whether natural or artificial, within the boundaries of the State of New Jersey or subject to its jurisdiction.

WETLANDS or WETLAND — An area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as "hydrophytic vegetation."

**§ 512-3. Design and performance standards for stormwater management measures.**

- A. Stormwater management measures for major development shall be developed to meet the erosion control, groundwater recharge, stormwater runoff quantity, and stormwater runoff quality standards in § 512-4 of this article. To the maximum extent practicable, these standards shall be met by incorporating Green Infrastructure best management practices (GI BMPs), stormwater management measures, and nonstructural stormwater management strategies into the design. If these strategies alone are not sufficient to meet these standards, structural stormwater management measures necessary to meet these standards shall be incorporated into the design.

The standards in this article apply only to new major development and are intended to minimize the impact of stormwater runoff on water quality and water quantity in receiving water bodies and maintain groundwater recharge. The standards do not apply to new major development to the extent that alternative design and performance standards, which provide at least as much protection from stormwater-related loss of groundwater recharge,



stormwater quantity, and water quality impacts of major development projects as would be provided under the standards in stormwater management plan or water quality management plan adopted in accordance with Department rules. The stormwater management requirements within this chapter, as they relate to "major development" supersede other design requirements stipulated in the Mount Ephraim Borough Code, including but not limited to the following sections:

- B. N.J.A.C. 7:8-5, are applicable under a regional
  - (1) Borough Chapter 495, Site Plan Review.
  - (2) Borough Chapter 518, Subdivision of Land.
    - (a) Article I, Purpose; Administration; Terminology
    - (b) Article II, Procedures and Plat Details.
    - (c) Article III, Improvements and Design Standards.

**§ 512-4. Specific requirements.**

- A. The development shall incorporate a maintenance plan for the stormwater management measures incorporated into the design of a major development in accordance with § 512-10 of this article.
- B. Stormwater management measures shall avoid adverse impacts of concentrated flow on habitat for threatened and endangered species as documented in the Department's Landscape Project or Natural Heritage Database established under N.J.S.A. 13:1B-15.147 through 13:1B-15.150, particularly *Helonias bullata* (swamp pink) and/or *Clemmys muhlenbergi* (bog turtle).
- C. The following linear development projects are exempt from the groundwater recharge, stormwater runoff quantity, and stormwater runoff quality requirements of § 512-4P and Q of this article:
  - (1) The construction of an underground utility line, provided that the disturbed areas are revegetated upon completion;
  - (2) The construction of an aboveground utility line, provided that the existing conditions are maintained to the maximum extent practicable; and
  - (3) The construction of a public pedestrian access, such as a sidewalk or trail, with a maximum width of 14 feet, provided that the access is made of permeable material.
- D. A waiver from strict compliance from the groundwater recharge, stormwater runoff quantity, and stormwater runoff quality requirements of § 512-4F and G of this article may be obtained for the enlargement of an existing public roadway or railroad; or the construction or enlargement of a public pedestrian access, provided that the following conditions are met:
  - (1) The applicant demonstrates that there is a public need for the project that cannot be accomplished by any other means;

- (2) The applicant demonstrates through an alternatives analysis that, through the use of green infrastructure, nonstructural, and structural stormwater management strategies and measures, the option selected complies with the requirements of § 512-4P and Q of this article to the maximum extent practicable;
- (3) The applicant demonstrates that, in order to meet the requirements of § 512-4P and Q of this article, existing structures currently in use, such as homes and buildings, would need to be condemned; and
- (4) The applicant demonstrates that it does not own or have other rights to areas, including the potential to obtain through condemnation, lands not falling under Subsection D(3), above, within the upstream drainage area of the receiving stream, that would provide additional opportunities to mitigate the requirements of § 512-4P and Q of this article that were not achievable on-site.

E. Green Infrastructure Stormwater Strategies

Tables 1 through 3 below summarize the ability of stormwater best management practices identified and described in the New Jersey Stormwater Best Management Practices Manual to satisfy the green infrastructure, groundwater recharge, stormwater runoff quality and stormwater runoff quantity standards specified in Section IV.O, P, Q and R. When designed in accordance with the most current version of the New Jersey Stormwater Best Management Practices Manual, the stormwater management measures found at N.J.A.C. 7:8-5.2 (f) Tables 5-1, 5-2 and 5-3 and listed below in Tables 1, 2 and 3 are presumed to be capable of providing stormwater controls for the design and performance standards as outlined in the tables below. Upon amendments of the New Jersey Stormwater Best Management Practices to reflect additions or deletions of BMPs meeting these standards, or changes in the presumed performance of BMPs designed in accordance with the New Jersey Stormwater BMP Manual, the Department shall publish in the New Jersey Registers a notice of administrative change revising the applicable table. The most current version of the BMP Manual can be found on the Department's website at:

[https://njstormwater.org/bmp\\_manual2.htm](https://njstormwater.org/bmp_manual2.htm).

- F. Where the BMP tables in the NJ Stormwater Management Rule are different due to updates or amendments with the tables in this ordinance the BMP Tables in the Stormwater Management rule at N.J.A.C. 7:8-5.2(f) shall take precedence.

<b>Best Management Practice</b>	<b>Stormwater Runoff Quality TSS Removal Rate (percent)</b>	<b>Stormwater Runoff Quantity</b>	<b>Groundwater Recharge</b>	<b>Minimum Separation from Seasonal High Water Table (feet)</b>
Cistern	0	Yes	No	--
Dry Well(a)	0	No	Yes	2
Grass Swale	50 or less	No	No	2(e) 1(f)
Green Roof	0	Yes	No	--
Manufactured Treatment Device(a) (g)	50 or 80	No	No	Dependent upon the device
Pervious Paving System(a)	80	Yes	Yes(b) No(c)	2(b) 1(c)
Small-Scale Bioretention Basin(a)	80 or 90	Yes	Yes(b) No(c)	2(b) 1(c)
Small-Scale Infiltration Basin(a)	80	Yes	Yes	2
Small-Scale Sand Filter	80	Yes	Yes	2
Vegetative Filter Strip	60-80	No	No	--

*.(Notes corresponding to annotations (a) through (g) are found under Table 3)*

<b>Best Management Practice</b>	<b>Stormwater Runoff Quality TSS Removal Rate (percent)</b>	<b>Stormwater Runoff Quantity</b>	<b>Groundwater Recharge</b>	<b>Minimum Separation from Seasonal High Water Table (feet)</b>
Bioretention System	80 or 90	Yes	Yes(b) No(c)	2(b) 1(c)
Infiltration Basin	80	Yes	Yes	2
Sand Filter(b)	80	Yes	Yes	2
Standard Constructed Wetland	90	Yes	No	N/A
Wet Pond(d)	50-90	Yes	No	N/A

*(Notes corresponding to annotations (a) through (g) are found under Table 3)*

<b>Best Management Practice</b>	<b>Stormwater Runoff Quality TSS Removal Rate (percent)</b>	<b>Stormwater Runoff Quantity</b>	<b>Groundwater Recharge</b>	<b>Minimum Separation from Seasonal High Water Table (feet)</b>
Blue Roof	0	Yes	No	N/A
Extended Detention Basin	40-60	Yes	No	1
Manufactured Treatment Device(h)	50 or 80	No	No	Dependent upon the device
Sand Filter(c)	80	Yes	No	1
Subsurface Gravel Wetland	90	No	No	1
Wet Pond	50-90	Yes	No	N/A

Notes to Tables 1, 2, and 3:

(a) subject to the applicable contributory drainage area limitation specified at Section IV.O.2;

(b) designed to infiltrate into the subsoil;

(c) designed with underdrains;

(d) designed to maintain at least a 10-foot wide area of native vegetation along at least 50 percent of the shoreline and to include a stormwater runoff retention component designed to capture stormwater runoff for beneficial reuse, such as irrigation;

(e) designed with a slope of less than two percent;

(f) designed with a slope of equal to or greater than two percent;

(g) manufactured treatment devices that meet the definition of green infrastructure at Section II;

(h) manufactured treatment devices that do not meet the definition of green infrastructure at Section II.

- G. An alternative stormwater management measure, alternative removal rate, and/or alternative method to calculate the removal rate may be used if the design engineer demonstrates the capability of the proposed alternative stormwater management measure and/or the validity of the alternative rate or method to the municipality. A copy of any approved alternative stormwater management measure, alternative removal rate, and/or alternative method to calculate the removal rate shall be provided to the Department in accordance with Section VI.B. Alternative stormwater management measures may be used to satisfy the requirements at Section IV.O only if the measures meet the definition of green infrastructure at Section II. Alternative stormwater management measures that function in a similar manner to a BMP listed at Section O.2 are subject to the contributory drainage area limitation specified at Section O.2 for that similarly functioning BMP. Alternative stormwater management

measures approved in accordance with this subsection that do not function in a similar manner to any BMP listed at Section O.2 shall have a contributory drainage area less than or equal to 2.5 acres, except for alternative stormwater management measures that function similarly to cisterns, grass swales, green roofs, standard constructed wetlands, vegetative filter strips, and wet ponds, which are not subject to a contributory drainage area limitation. Alternative measures that function similarly to standard constructed wetlands or wet ponds shall not be used for compliance with the stormwater runoff quality standard unless a variance in accordance with N.J.A.C. 7:8-4.6 or a waiver from strict compliance in accordance with Section IV.D is granted from Section IV.O.

- H. Whenever the stormwater management design includes one or more BMPs that will infiltrate stormwater into subsoil, the design engineer shall assess the hydraulic impact on the groundwater table and design the site, so as to avoid adverse hydraulic impacts. Potential adverse hydraulic impacts include, but are not limited to, exacerbating a naturally or seasonally high water table, so as to cause surficial ponding, flooding of basements, or interference with the proper operation of subsurface sewage disposal systems or other subsurface structures within the zone of influence of the groundwater mound, or interference with the proper functioning of the stormwater management measure itself.
- I. Design standards for stormwater management measures are as follows:
  - 1. Stormwater management measures shall be designed to take into account the existing site conditions, including, but not limited to, environmentally critical areas; wetlands; flood-prone areas; slopes; depth to seasonal high water table; soil type, permeability, and texture; drainage area and drainage patterns; and the presence of solution-prone carbonate rocks (limestone);
  - 2. Stormwater management measures shall be designed to minimize maintenance, facilitate maintenance and repairs, and ensure proper functioning. Trash racks shall be installed at the intake to the outlet structure, as appropriate, and shall have parallel bars with one-inch spacing between the bars to the elevation of the water quality design storm. For elevations higher than the water quality design storm, the parallel bars at the outlet structure shall be spaced no greater than one-third the width of the diameter of the orifice or one-third the width of the weir, with a minimum spacing between bars of one inch and a maximum spacing between bars of six inches. In addition, the design of trash racks must comply with the requirements of Section VIII.C;
  - 3. Stormwater management measures shall be designed, constructed, and installed to be strong, durable, and corrosion resistant. Measures that are consistent with the relevant portions of the Residential Site Improvement Standards at N.J.A.C. 5:21-7.3, 7.4, and 7.5 shall be deemed to meet this requirement;
  - 4. Stormwater management BMPs shall be designed to meet the minimum safety standards for stormwater management BMPs at

- Section VIII; and
5. The size of the orifice at the intake to the outlet from the stormwater management BMP shall be a minimum of two and one-half inches in diameter.
  - J. Manufactured treatment devices may be used to meet the requirements of this subchapter, provided the pollutant removal rates are verified by the New Jersey Corporation for Advanced Technology and certified by the Department. Manufactured treatment devices that do not meet the definition of green infrastructure at Section II may be used only under the circumstances described at Section IV.O.4.
  - K. Any application for a new agricultural development that meets the definition of major development at Section II shall be submitted to the Soil Conservation District for review and approval in accordance with the requirements at Sections IV.O, P, Q and R and any applicable Soil Conservation District guidelines for stormwater runoff quantity and erosion control. For purposes of this subsection, "agricultural development" means land uses normally associated with the production of food, fiber, and livestock for sale. Such uses do not include the development of land for the processing or sale of food and the manufacture of agriculturally related products.
  - L. If there is more than one drainage area, the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards at Section IV.P, Q and R shall be met in each drainage area, unless the runoff from the drainage areas converge onsite and no adverse environmental impact would occur as a result of compliance with any one or more of the individual standards being determined utilizing a weighted average of the results achieved for that individual standard across the affected drainage areas.
  - M. Any stormwater management measure authorized under the municipal stormwater management plan or ordinance shall be reflected in a deed notice recorded in the *{insert Office of the County Clerk or the registrar of deeds and mortgages of the county in which the development, project, project site, or mitigation area containing the stormwater management measure is located, as appropriate, to the municipality}*. A form of deed notice shall be submitted to the municipality for approval prior to filing. The deed notice shall contain a description of the stormwater management measure(s) used to meet the green infrastructure, groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards at Section IV.O, P, Q and R and shall identify the location of the stormwater management measure(s) in NAD 1983 State Plane New Jersey FIPS 2900 US Feet or Latitude and Longitude in decimal degrees. The deed notice shall also reference the maintenance plan required to be recorded upon the deed pursuant to Section X.B.5. Prior to the commencement of construction, proof that the above required deed notice has been filed shall be submitted to the municipality. Proof that the required

information has been recorded on the deed shall be in the form of either a copy of the complete recorded document or a receipt from the clerk or other proof of recordation provided by the recording office. However, if the initial proof provided to the municipality is not a copy of the complete recorded document, a copy of the complete recorded document shall be provided to the municipality within 180 calendar days of the authorization granted by the municipality.

- N. A stormwater management measure approved under the municipal stormwater management plan or ordinance may be altered or replaced with the approval of the municipality, if the municipality determines that the proposed alteration or replacement meets the design and performance standards pursuant to Section IV of this ordinance and provides the same level of stormwater management as the previously approved stormwater management measure that is being altered or replaced. If an alteration or replacement is approved, a revised deed notice shall be submitted to the municipality for approval and subsequently recorded with the *{insert appropriate Office of the County Clerk or the registrar of deeds and mortgages, as applies}* and shall contain a description and location of the stormwater management measure, as well as reference to the maintenance plan, in accordance with M above. Prior to the commencement of construction, proof that the above required deed notice has been filed shall be submitted to the municipality in accordance with M above.

O. Green Infrastructure Standards

1. This subsection specifies the types of green infrastructure BMPs that may be used to satisfy the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards.
2. To satisfy the groundwater recharge and stormwater runoff quality standards at Section IV.P and Q, the design engineer shall utilize green infrastructure BMPs identified in Table 1 at Section IV.F. and/or an alternative stormwater management measure approved in accordance with Section IV.G. The following green infrastructure BMPs

<b>Best Management Practice</b>	<b>Maximum Contributory Drainage Area</b>
Dry Well	1 acre
Manufactured Treatment Device	2.5 acres
Pervious Pavement Systems	Area of additional inflow cannot exceed three times the area occupied by the BMP
Small-scale Bioretention Systems	2.5 acres

Small-scale Infiltration Basin	2.5 acres
Small-scale Sand Filter	2.5 acres

3. To satisfy the stormwater runoff quantity standards at Section IV.R, the design engineer shall utilize BMPs from Table 1 or from Table 2 and/or an alternative stormwater management measure approved in accordance with Section IV.G.
  4. If a variance in accordance with N.J.A.C. 7:8-4.6 or a waiver from strict compliance in accordance with Section IV.D is granted from the requirements of this subsection, then BMPs from Table 1, 2, or 3, and/or an alternative stormwater management measure approved in accordance with Section IV.G may be used to meet the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards at Section IV.P, Q and R.
  5. For separate or combined storm sewer improvement projects, such as sewer separation, undertaken by a government agency or public utility (for example, a sewerage company), the requirements of this subsection shall only apply to areas owned in fee simple by the government agency or utility, and areas within a right-of-way or easement held or controlled by the government agency or utility; the entity shall not be required to obtain additional property or property rights to fully satisfy the requirements of this subsection. Regardless of the amount of area of a separate or combined storm sewer improvement project subject to the green infrastructure requirements of this subsection, each project shall fully comply with the applicable groundwater recharge, stormwater runoff quality control, and stormwater runoff quantity standards at Section IV.P, Q and R, unless the project is granted a waiver from strict compliance in accordance with Section IV.D.
- P. Erosion control, groundwater recharge and runoff quantity standards. This subsection contains minimum design and performance standards to control erosion, encourage and control infiltration and groundwater recharge, and control stormwater runoff quantity impacts of major development.
- i. The minimum design and performance standards for erosion control are those established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq. and implementing rules.
  - ii. The minimum design and performance standards for groundwater recharge shall be met by incorporating green infrastructure (GI), and are as follows:
    1. The design engineer shall, using the assumptions and factors for stormwater runoff and groundwater recharge calculations at § 512-5, either:



- a. Demonstrate through hydrologic and hydraulic analysis that the site and its stormwater management measures maintain 100% of the average annual preconstruction groundwater recharge volume for the site; or
- b. Demonstrate through hydrologic and hydraulic analysis that the increase of stormwater runoff volume from preconstruction to post-construction for the two-year storm is infiltrated.
  2. This groundwater recharge requirement does not apply to projects within the urban redevelopment area, or to projects subject to Subsection F(2)(c) below.
  3. The following types of stormwater shall not be recharged:
    - a. Stormwater from areas of high pollutant loading. "High pollutant loading areas" are areas in industrial and commercial developments where solvents and/or petroleum products are loaded/unloaded, stored, or applied; areas where pesticides are loaded/unloaded or stored; areas where hazardous materials are expected to be present in greater than reportable quantities as defined by the United States Environmental Protection Agency (USEPA) at 40 CFR 302.4; areas where recharge would be inconsistent with a Department-approved remedial action work plan or landfill closure plan; and areas with high risks for spills of toxic materials, such as gas stations and vehicle maintenance facilities; and
    - b. Industrial stormwater exposed to source material. "Source material" means any material(s) or machinery, located at an industrial facility that is directly or indirectly related to process, manufacturing, or other industrial activities, which could be a source of pollutants in any industrial stormwater discharge to groundwater. Source materials include, but are not limited to, raw materials; intermediate products; final products; waste materials; by-products; industrial machinery and fuels; and lubricants, solvents, and detergents that are related to process, manufacturing, or other industrial activities that are exposed to stormwater.
  4. The design engineer shall assess the hydraulic impact on the groundwater table and design the site so as to avoid adverse hydraulic impacts. Potential adverse hydraulic impacts include, but are not limited to, exacerbating a

naturally or seasonally high water table so as to cause surficial ponding, flooding of basements, or interference with the proper operation of subsurface sewage disposal systems and other subsurface structures in the vicinity or downgradient of the groundwater recharge area.

- iii. In order to control stormwater runoff quantity impacts, the design engineer shall, using the assumptions and factors for stormwater runoff calculations at § 512-5 of this article, complete one of the following:
  1. Demonstrate through hydrologic and hydraulic analysis that, for stormwater leaving the site, post-construction runoff hydrographs for the two-, ten-, and one-hundred- year storm events do not exceed, at any point in time, the preconstruction runoff hydrographs for the same storm events;
  2. Demonstrate through hydrologic and hydraulic analysis that there is no increase, as compared to the preconstruction condition, in the peak runoff rates of stormwater leaving the site for the two-, ten-, and one- hundred-year storm events and that the increased volume or change in timing of stormwater runoff will not increase flood damage at or downstream of the site. This analysis shall include the analysis of impacts of existing land uses and projected land uses assuming full development under existing zoning and land use ordinances in the drainage area;
  3. Design stormwater management measures so that the post-construction peak runoff rates for the two-, ten-, and one-hundred-year storm events are 50%, 75% and 80%, respectively, of the preconstruction peak runoff rates. The percentages apply only to the post-construction stormwater runoff that is attributable to the portion of the site on which the proposed development or project is to be constructed. The percentages shall not be applied to post-construction stormwater runoff into tidal flood hazard areas, if the increased volume of stormwater runoff will not increase flood damages below the point of discharge; or
  4. In tidal flood hazard areas, stormwater runoff quantity analysis in accordance with Subsection F(3)(a), (b) and (c) above shall only be applied if the increased volume of Stormwater runoff, change in timing, or increased rate of stormwater runoff could increase flood damages below the point of discharge. There is no analysis required if the stormwater is discharged directly into any ocean, bay, inlet, or reach of any watercourse between its confluence with any ocean, bay, or inlet, and downstream of the first water control structure.

**Q. Stormwater runoff quality standards.**

- i. Stormwater management measures shall be designed to reduce the post-construction load of total suspended solids (TSS) in stormwater runoff by 80% of the anticipated load from the developed site, expressed as an annual average. Stormwater management measures shall only be required for water quality control if an additional 1/4 acre of regulated motor vehicle impervious surface is being proposed on a development site. If the surface is considered regulated motor vehicle surface because the water quality treatment for an area of motor vehicle surface that is currently receiving water quality treatment either by vegetation or soil, by an existing stormwater management measure, or by treatment at a wastewater treatment plant is to be modified or removed, the project shall maintain or increase the existing TSS removal of the anticipated load expressed as an annual average.
- ii. The requirement to reduce TSS does not apply to any stormwater runoff in a discharge regulated under a numeric effluent limitation for TSS imposed under the New Jersey Pollutant Discharge Elimination System (NJPDES) rules, N.J.A.C. 7:14A, or in a discharge specifically exempt under a NJPDES permit from this requirement. Every major development, including any that discharge into a combined sewer system, shall comply with 2 above, unless the major development is itself subject to a NJPDES permit with a numeric effluent limitation for TSS or the NJPDES permit to which the major development is subject exempts the development from a numeric effluent limitation for TSS.
- iii. Water quality calculations shall take into account the distribution of rain from the water quality design storm, as reflected in Table 4. The calculation of the volume of runoff may take into account the implementation of nonstructural and structural stormwater management measures.

**Table 4**

**Water Quality Design Storm Distribution**

<b>Time (minutes)</b>	<b>Cumulative Rainfall (inches)</b>	<b>Time (minutes)</b>	<b>Cumulative Rainfall (inches)</b>
0	0.0000	65	0.8917
5	0.0083	70	0.9917
10	0.0166	75	1.0500
15	0.0250	80	1.0840
20	0.0500	85	1.1170
25	0.0750	90	1.1500

30	0.1000	95	1.1750
35	0.1330	100	1.2000
40	0.1660	105	1.2250
45	0.2000	110	1.2334
50	0.2583	115	1.2417
55	0.3583	120	1.2500
60	0.6250		

iv. For purposes of TSS reduction calculations, Table 5, below, presents the presumed removal rates for certain BMPs designed in accordance with the New Jersey Stormwater Best Management Practices Manual, and TSS reduction shall be calculated based on the removal rates listed for the BMPs in Table 5. The BMP Manual may be obtained from the address identified in § 512-7 of this article, or found on the Department's website at [www.njstormwater.org](http://www.njstormwater.org). The BMP Manual and other sources of technical guidance are listed in § 512-7 of this article. Alternative removal rates and methods of calculating removal rates may be used if the design engineer provides documentation demonstrating the capability of these alternative rates and methods to the review agency. A copy of any approved alternative rate or method of calculating the removal rate shall be provided to the Department at the following address: Division of Watershed Management, New Jersey Department of Environmental Protection, PO Box 418, Trenton, New Jersey 08625-0418.

i. If more than one BMP in series is necessary to achieve the required TSS reduction of 80% for a site, the applicant shall utilize the following formula to calculate TSS reduction:

$$R = A + B - (A \times B)/100$$

Where

R = Total TSS percent load removal from application of both BMPs.

A = The TSS percent removal rate applicable to the first BMP.

B = The TSS percent removal rate applicable to the second BMP.

**Table 5**

**TSS Removal Rates for BMPs**

<b>Best Management Practice</b>	<b>TSS Percent Removal Rate</b>
Bioretention systems	80% to 90%
Constructed stormwater wetland	90%
*Extended detention basin	40% to 60%
Infiltration structure	80%
*Manufactured treatment device	50 % to 80%
*Sand filter	80%
Vegetative filter strip	60% to 80%
*Wet pond	50% to 90%

\*These BMPs will now require a waiver or variance to implement

- ii. If there is more than one on-site drainage area, the TSS removal rate of 80% shall apply to each drainage area, unless the runoff from the subareas converge on site, in which case the removal rate can be demonstrated through a calculation using a weighted average.
- iii. Stormwater management measures shall also be designed to reduce, to the maximum extent feasible, the post-construction nutrient load of the anticipated load from the developed site in stormwater runoff generated from the water quality design storm. In achieving reduction of nutrients to the maximum extent feasible, the design of the site shall include nonstructural strategies and structural measures that optimize nutrient removal, while still achieving the performance standards in § 512-4P and Q of this article.
- iv. Additional information and examples are contained in the New Jersey Stormwater Best Management Practices Manual, which may be obtained from the address identified in § 512-7 of this article.
- v. In accordance with the definition of FW1 at N.J.A.C. 7:9B-1.4, stormwater management measures shall be designed to prevent any increase in stormwater runoff to waters classified as FW1.
- vi. Special water resource protection areas shall be established along all waters designated Category One at N.J.A.C. 7:9B, and perennial or intermittent streams that drain into or upstream of the Category One waters

as shown on the USGS Quadrangle Maps or in the County Soil Surveys, within the associated HUC14 drainage area. These areas shall be established for the protection of water quality, aesthetic value, exceptional ecological significance, exceptional recreational significance, exceptional water supply significance, and exceptional fisheries significance of those established Category One waters. These areas shall be designated and protected as follows:

1. The applicant shall preserve and maintain a special water resource protection area in accordance with one of the following:
  - a. A three-hundred-foot special water resource protection area shall be provided on each side of the waterway, measured perpendicular to the waterway from the top of the bank outwards or from the center line of the waterway where the bank is not defined, consisting of existing vegetation or vegetation allowed to follow natural succession.
  - b. Encroachment within the designated special water resource protection area under Subsection G(x)(1)[a] above shall only be allowed where previous development or disturbance has occurred (for example, active agricultural use, parking area, or maintained lawn area). The encroachment shall only be allowed where the applicant demonstrates that the functional value and overall condition of the special water resource protection area will be maintained to the maximum extent practicable. In no case shall the remaining special water resource protection area be reduced to less than 150 feet as measured perpendicular to the top of bank of the waterway or center line of the waterway where the bank is undefined. All encroachments proposed under this subsection shall be subject to review and approval by the Department.
2. All stormwater shall be discharged outside of and flow through the special water resource protection area and shall comply with the standard for off-site stability in the Standards For Soil Erosion and Sediment Control in New Jersey, established under the Soil Erosion and Sediment Control Act, N.J.S
3. If stormwater discharged outside of and flowing through

the special water resource protection area cannot comply with the standard for off-site stability in the Standards for Soil Erosion and Sediment Control in New Jersey, established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq., then the stabilization measures in accordance with the requirements of the above standards may be placed within the special water resource protection area, provided that:

- a. Stabilization measures shall not be placed within 150 feet of the Category One waterway;
  - b. Stormwater associated with discharges allowed by this section shall achieve a TSS post-construction removal rate of 95%;
  - c. Temperature shall be addressed to ensure no impact on the receiving waterway;
  - d. The encroachment shall only be allowed where the applicant demonstrates that the functional value and overall condition of the special water resource protection area will be maintained to the maximum extent practicable;
  - e. A conceptual project design meeting shall be held with the appropriate Department staff and Soil Conservation District staff to identify necessary stabilization measures; and
  - f. All encroachments proposed under this section shall be subject to review and approval by the Department.
4. A stream corridor protection plan may be developed by a regional stormwater management planning committee as an element of a regional stormwater management plan, or by a municipality through an adopted municipal stormwater management plan. If a stream corridor protection plan for a waterway subject to § 512-4G(x) has been approved by the New Jersey Department of Environmental Protection, then the provisions of the plan shall be the applicable special water resource protection area requirements for that waterway. A stream corridor protection plan for a waterway subject to § 512-4G(x) shall maintain or enhance the current functional value and overall condition of the special water resource protection area as defined in § 512-4G(x)(1)[a] above. In no case shall a stream corridor protection plan allow the reduction of the special water resource protection area to less than 150 feet as measured perpendicular to the waterway subject to this subsection.
5. Section 512-4G(x) does not apply to the construction of one individual single-family dwelling that is not part of a larger development on a lot receiving preliminary or final subdivision

approval on or before December 3, 2018, and that the motor vehicle surfaces are made up of permeable material(s) such as gravel, dirt, and/or shells.

**§ 512-5. Calculation of stormwater runoff and groundwater recharge.**

- A. Stormwater runoff shall be calculated in accordance with the following:
- (1) The design engineer shall calculate runoff using one of the following methods:
    - (a) The USDA Natural Resources Conservation Service (NRCS) methodology, including the NRCS Runoff Equation and Dimensionless Unit Hydrograph, as described in the NRCS National Engineering Handbook, Section 4, Hydrology and Technical Release 55, Urban Hydrology for Small Watersheds; or
    - (b) The Rational Method for peak flow and the Modified Rational Method for hydrograph computations.
  - (2) For the purpose of calculating runoff coefficients and groundwater recharge, there is a presumption that the preconstruction condition of a site or portion thereof is a wooded land use with good hydrologic condition. The term "runoff coefficient" applies to both the NRCS methodology at § 512-5A(1)(a), above, and the Rational and Modified Rational Methods at § 512-5A(1)(b), above. A runoff coefficient or a groundwater recharge land cover for an existing condition may be used on all or a portion of the site, if the design engineer verifies that the hydrologic condition has existed on the site or portion of the site for at least five years without interruption prior to the time of application. If more than one land cover has existed on the site during the five years immediately prior to the time of application, the land cover with the lowest runoff potential shall be used for the computations. In addition, there is the presumption that the site is in good hydrologic condition (if the land use type is pasture, lawn, or park), with good cover (if the land use type is woods), or with good hydrologic condition and conservation treatment (if the land use type is cultivation).
  - (3) In computing preconstruction stormwater runoff, the design engineer shall account for all significant land features and structures, such as ponds, wetlands, depressions, hedgerows, or culverts that may reduce preconstruction stormwater runoff rates and volumes.
  - (4) In computing stormwater runoff from all design storms, the design engineer shall consider the relative stormwater runoff rates and/or volumes of pervious and impervious surfaces separately to accurately compute the rates and volume of stormwater runoff from



the site. To calculate runoff from unconnected impervious cover, urban impervious area modifications as described in the NRCS Technical Release 55, Urban Hydrology for Small Watersheds, and other methods, may be employed.

- (5) If the invert of the outlet structure of a stormwater management measure is below the flood hazard design flood elevation, as defined at N.J.A.C. 7:13, the design engineer shall take into account the effects of tailwater in the design of structural stormwater management measures.
- B. Groundwater recharge may be calculated in accordance with the following: The New Jersey Geological Survey Report GSR-32 A Method for Evaluating Ground-Water Recharge Areas in New Jersey, incorporated herein by reference, as amended and supplemented. Information regarding the methodology is available from the New Jersey Stormwater Best Management Practices Manual; at <http://www.state.nj.us/dep/njgs/>; or at New Jersey Geological Survey, 29 Arctic Parkway, PO Box 427, Trenton, New Jersey 08625-0427; (609) 984-6587.

#### **§ 512-6. Solids and Floatable Materials Control Standards:**

A. Site design features identified under Section IV.F above, or alternative designs in accordance with Section IV.G above, to prevent discharge of trash and debris from drainage systems shall comply with the following standard to control passage of solid and floatable materials through storm drain inlets. For purposes of this paragraph, "solid and floatable materials" means sediment, debris, trash, and other floating, suspended, or settleable solids. For exemptions to this standard see Section VII.A.2 below.

1. Design engineers shall use one of the following grates whenever they use a grate in pavement or another ground surface to collect stormwater from that surface into a storm drain or surface water body under that grate:
  - i. The New Jersey Department of Transportation (NJDOT) bicycle safe grate, which is described in Chapter 2.4 of the NJDOT Bicycle Compatible Roadways and Bikeways Planning and Design Guidelines; or
  - ii. A different grate, if each individual clear space in that grate has an area of no more than seven (7.0) square inches, or is no greater than 0.5 inches across the smallest dimension.

Examples of grates subject to this standard include grates in grate inlets, the grate portion (non-curb-opening portion) of combination inlets, grates on storm sewer manholes, ditch grates, trench grates, and grates of spacer bars in slotted drains. Examples of ground surfaces include surfaces of roads (including bridges), driveways, parking areas, bikeways, plazas, sidewalks, lawns, fields, open channels, and stormwater system floors used to collect stormwater from the surface into a storm drain or surface water body.

- iii. For curb-opening inlets, including curb-opening inlets in combination inlets,

the clear space in that curb opening, or each individual clear space if the curb opening has two or more clear spaces, shall have an area of no more than seven (7.0) square inches, or be no greater than two (2.0) inches across the smallest dimension.

2. The standard in A.1. above does not apply:

- i. Where each individual clear space in the curb opening in existing curb-opening inlet does not have an area of more than nine (9.0) square inches;
- ii. Where the municipality agrees that the standards would cause inadequate hydraulic performance that could not practicably be overcome by using additional or larger storm drain inlets;
- iii. Where flows from the water quality design storm as specified in N.J.A.C. 7:8 are conveyed through any device (e.g., end of pipe netting facility, manufactured treatment device, or a catch basin hood) that is designed, at a minimum, to prevent delivery of all solid and floatable materials that could not pass through one of the following:
  - a. A rectangular space four and five-eighths (4.625) inches long and one and one-half (1.5) inches wide (this option does not apply for outfall netting facilities); or
  - b. A bar screen having a bar spacing of 0.5 inches.

Note that these exemptions do not authorize any infringement of requirements in the Residential Site Improvement Standards for bicycle safe grates in new residential development (N.J.A.C. 5:21-4.18(b)2 and 7.4(b)1).

- iv. Where flows are conveyed through a trash rack that has parallel bars with one-inch (1 inch) spacing between the bars, to the elevation of the Water Quality Design Storm as specified in N.J.A.C. 7:8; or
- v. Where the New Jersey Department of Environmental Protection determines, pursuant to the New Jersey Register of Historic Places Rules at N.J.A.C. 7:4-7.2(c), that action to meet this standard is an undertaking that constitutes an encroachment or will damage or destroy the New Jersey Register listed historic property.

#### **§ 512-7. Sources for technical guidance.**

- A. Technical guidance for stormwater management measures can be found at the department website below, or in the documents listed at § 512-7A(1) and (2), below, which are available from Maps and Publications, New Jersey Department of Environmental Protection, 428 East State Street, PO Box 420, Trenton, New Jersey 08625; telephone (609) 777-1038.

[http://www.nj.gov/dep/stormwater/bmp\\_manual2.htm](http://www.nj.gov/dep/stormwater/bmp_manual2.htm).

- (1) Guidelines for stormwater management measures are contained in the New Jersey Stormwater Best Management Practices Manual, as amended. Information is provided on

stormwater management measures such as, but not limited to, those listed in Tables 1, 2, and 3 in § 512-4.

- (2) The New Jersey Department of Environmental Protection Stormwater Management Facilities Maintenance Manual, as amended, found at the website below.

[https://www.njstormwater.org/maintenance\\_guidance.htm](https://www.njstormwater.org/maintenance_guidance.htm).

- B. Submissions required for review by the Department should be mailed to:

The Division of Water Quality, New Jersey Department of Environmental Protection, Mail Code 401-02B, PO Box 420, Trenton, New Jersey 08625-0420.

- C. Additional technical guidance for stormwater management measures can be obtained from the following:

- (1) The Standards for Soil Erosion and Sediment Control in New Jersey promulgated by the State Soil Conservation Committee and incorporated into N.J.A.C. 2:90. Copies of these standards may be obtained by contacting the State Soil Conservation Committee or any of the Soil Conservation Districts listed in N.J.A.C. 2:90-1.3(a)4. The location, address, and telephone number of each Soil Conservation District may be obtained from the State Soil Conservation Committee, PO Box 330, Trenton, New Jersey 08625; (609) 292-5540;
- (2) The Rutgers Cooperative Extension Service, 732-932-9306; and
- (3) The Soil Conservation Districts listed in N.J.A.C. 2:90-1.3(a)4. The location, address, and telephone number of each Soil Conservation District may be obtained from the State Soil Conservation Committee, PO Box 330, Trenton, New Jersey 08625; (609) 292-5540.

#### **§ 512-8. Safety standards for stormwater management basins.**

- A. This section sets forth requirements to protect public safety through the proper design and operation of stormwater management basins. This section applies to any new stormwater management basin. However, the provisions of this section are not intended to preempt more stringent municipal or county safety requirements for new or existing stormwater management basins. Municipal and county stormwater management plans and ordinances may, pursuant to their authority, require existing stormwater management basins to be retrofitted to meet one or more of the safety standards in § 512-8B(1), and (3) for trash racks, overflow grates, and escape provisions at outlet structures.
- B. Requirements for trash racks, overflow grates and escape provisions.

- (1) A trash rack is a device designed to catch trash and debris and prevent the clogging of outlet structures. Trash racks shall be installed at the intake to the outlet from the stormwater management basin to ensure proper functioning of the basin outlets in accordance with the following:
  - (a) The trash rack shall have parallel bars, with no greater than six-inch spacing between the bars.
  - (b) The trash rack shall be designed so as not to adversely affect the hydraulic performance of the outlet pipe or structure.
  - (c) The average velocity of flow through a clean trash rack is not to exceed 2.5 feet per second under the full range of stage and discharge. Velocity is to be computed on the basis of the net area of opening through the rack.
  - (d) The trash rack shall be constructed and installed to be rigid, durable, and corrosion-resistant, and shall be designed to withstand a perpendicular live loading of 300 psf.
- (2) An overflow grate is designed to prevent obstruction of the overflow structure. If an outlet structure has an overflow grate, such grate shall meet the following requirements:
  - (a) The overflow grate shall be secured to the outlet structure but removable for emergencies and maintenance.
  - (b) The overflow grate spacing shall be no less than two inches across the smallest dimension.
  - (c) The overflow grate shall be constructed and installed to be rigid, durable, and corrosion-resistant, and shall be designed to withstand a perpendicular live loading of 300 psf.
- (3) For purposes of this Subsection B(3), escape provisions means the permanent installation of ladders, steps, rungs, or other features that provide easily accessible means of egress from stormwater management basins. Stormwater management basins shall include escape provisions as follows:
  - (a) If a stormwater management basin has an outlet structure, escape provisions shall be incorporated in or on the structure. With the prior approval of the reviewing agency identified in § 512-8C, below, a freestanding outlet structure may be exempted from this requirement.
  - (b) Safety ledges shall be constructed on the slopes of all new stormwater management basins having a permanent pool of water deeper than 2 1/2 feet. Such safety ledges shall be comprised of two steps. Each step shall be four feet to six feet in width. One step shall be located approximately 2 1/2 feet below the permanent water surface, and the second step shall

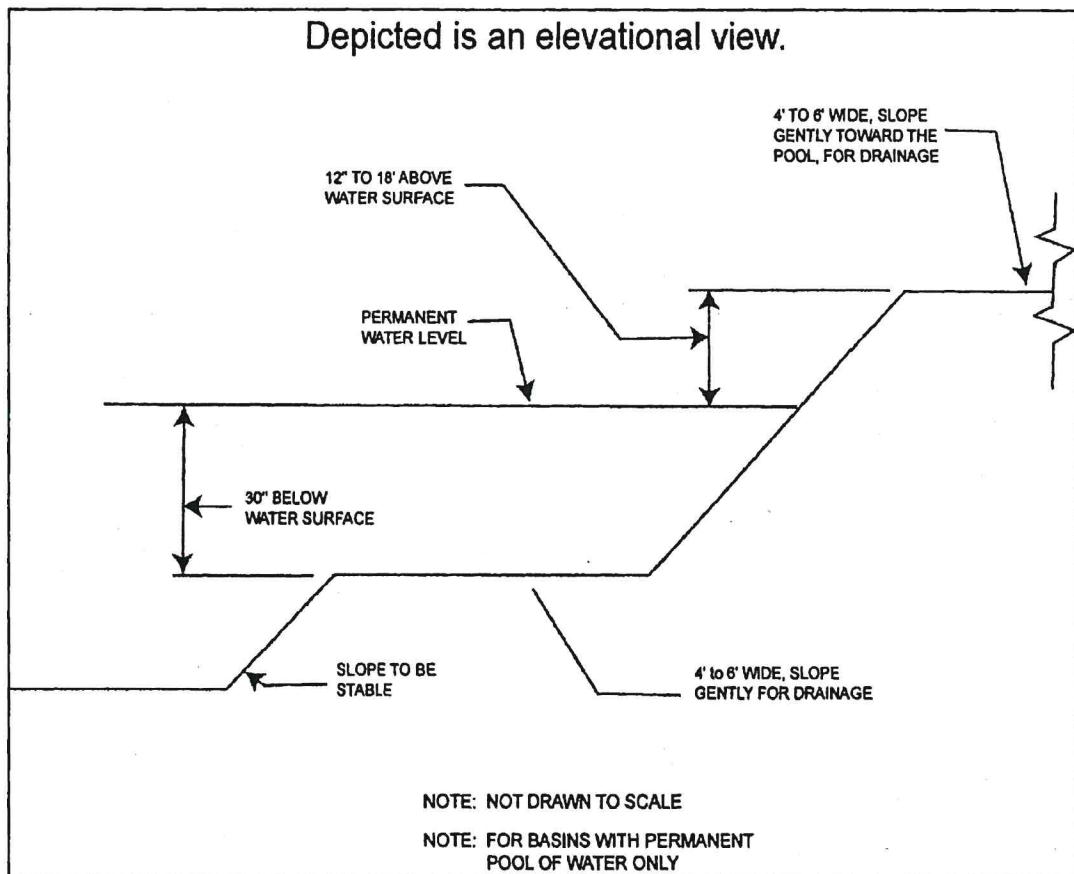
be located one foot to 1 1/2 feet above the permanent water surface. See § 512-8D, below, for an illustration of safety ledges in a stormwater management basin.

- (c) In new stormwater management basins, the maximum interior slope for an earthen dam, embankment, or berm shall not be steeper than three horizontal to one vertical.

C. Variance or exemption from safety standards. A variance or exemption from the safety standards for stormwater management basins may be granted only upon a written finding by the appropriate reviewing agency (municipality, county, or Department) that the variance or exemption will not constitute a threat to public safety.

- (1) In order to grant a variance from the stormwater management measures set forth in its approved municipal stormwater management plan and stormwater control ordinances, include a mitigation plan that identifies what measures are necessary potential mitigation projects, and/or criteria to evaluate mitigation projects that can be used to offset the deficit by granting a variance in accordance with N.J.A.C. 7:8-4.6

D. Illustration of safety ledges in a new stormwater management basin.



**§ 512-9. Requirements for a site development stormwater plan.**

**A. Submission of site development stormwater plan.**

- (1) Whenever an applicant seeks municipal approval of a development subject to this article, the applicant shall submit all of the required components of the checklist for the site development stormwater plan at § 512-9C, below, as part of the submission of the applicant's application for subdivision or site plan approval.
- (2) The applicant shall demonstrate that the project meets the standards set forth in this article.
- (3) The applicant shall submit 12 copies of the materials listed in the checklist for site development stormwater plans in accordance with § 512-9C of this article.

**B. Site development stormwater plan approval.** The applicant's site development project shall be reviewed as a part of the subdivision or site plan review process by the municipal board or official from which municipal approval is sought. That municipal board or official shall consult the engineer retained by the Planning and/or Zoning Board (as appropriate) to determine if all of the checklist requirements have been satisfied and to determine if the project meets the standards set forth in this article.

**C. Checklist requirements.** The following information shall be required:

- (1) Topographic base map. The reviewing engineer may require upstream tributary drainage system information as necessary. It is recommended that the topographic base map of the site be submitted which extends a minimum of 200 feet beyond the limits of the proposed development, at a scale of one inch equals 200 feet or greater, showing two-foot contour intervals. The map, as appropriate, may indicate the following: existing surface water drainage, shorelines, steep slopes, soils, areas of potential soil erosion, perennial or intermittent streams that drain into or upstream of the Category One waters, wetlands and floodplains (with their appropriate transition area buffers), marshlands, pervious or vegetative surfaces, existing man-made structures, roads, bearing and distances of property lines, and significant natural and man-made features not otherwise shown.
- (2) Environmental site analysis: a written and graphic description of the natural and man-made features of the site and its environs. This description should include a discussion of soil conditions, slopes, wetlands, waterways, and vegetation on the site. Particular attention should be given to unique, unusual, or environmentally

sensitive features and to those that provide particular opportunities or constraints for development.

- (3) Project description and site plan(s): a map (or maps) at the scale of the topographical base map indicating the location of existing and proposed buildings, roads, parking areas, utilities, structural facilities for stormwater management and sediment control, and other permanent structures. The map(s) shall also clearly show areas where alterations occur in the natural terrain and cover, including lawns and other landscaping, and seasonal high groundwater elevations. A written description of the site plan and justification of proposed changes in natural conditions should also be provided.
- (4) Land use planning and source control plan. This plan shall provide a demonstration of how the goals and standards of §§ 512-3 through 29 of this article are being met. The focus of this plan shall be to describe how the site is being developed to meet the objective of controlling groundwater recharge, stormwater quality, and stormwater quantity problems at the source by land management and source controls whenever possible.
- (5) Stormwater management facilities map. The following information, illustrated on a map of the same scale as the topographic base map, shall be included:
  - (a) Total area to be paved or built upon, proposed surface contours, land area to be occupied by the stormwater management facilities and the type of vegetation thereon, and details of the proposed plan to control and dispose of stormwater.
  - (b) Details of all stormwater management facility designs, during and after construction, including discharge provisions, discharge capacity for each outlet at different levels of detention, and emergency spillway provisions with maximum discharge capacity of each spillway.
- (6) Calculations.
  - (a) Comprehensive hydrologic and hydraulic design calculations for the predevelopment and post-development conditions for the design storms specified in § 512-4 of this article.
  - (b) When the proposed stormwater management control measures (e.g., infiltration basins) depend on the hydrologic properties of soils, then a soils report shall be submitted. The soils report shall be based on on-site boring logs or soil pit profiles. The number and location of required soil borings or soil pits shall be determined based on what is needed to determine the suitability and distribution of soils present at the location of the control measure.

- (7) Maintenance and repair plan. The design and planning of the stormwater management facility shall meet the maintenance requirements of § 512-10 of this article.
- (8) Waiver from submission requirements. The municipal official or board reviewing an application under this article may, in consultation with the municipal engineer, waive submission of any of the requirements in § 512-9C(1) through (6) of this article when it can be demonstrated that the information requested is impossible to obtain or it would create a hardship on the applicant to obtain and its absence will not materially affect the review process.

#### **§ 512-10. Maintenance and repair.**

- A. Applicability. Projects subject to review as in § 512-1C of this article shall comply with the requirements of § 512-10B and C. In addition to normal required performance and maintenance bonds, the developer is required to post a two-year guarantee for preventive and corrective maintenance of the stormwater management measures in accordance with N.J.S.A. 40:55D-53.
- B. General maintenance.
  - (1) The design engineer shall prepare a maintenance plan for the stormwater management measures incorporated into the design of a major development.
  - (2) The maintenance plan shall contain specific preventative maintenance tasks and schedules; cost estimates, including estimated cost of sediment, debris, or trash removal; and the name, address, and telephone number of the person or persons responsible for preventative and corrective maintenance (including replacement). Maintenance guidelines for stormwater management measures are available in the New Jersey Stormwater Best Management Practices Manual. If the maintenance plan identifies a person other than the developer (for example, a public agency or homeowners' association) as having the responsibility for maintenance, the plan shall include documentation of such person's agreement to assume this responsibility, or of the developer's obligation to dedicate a stormwater management facility to such person under an applicable ordinance or regulation.
  - (3) If the maintenance plan identifies a person other than the owner as having responsibility for maintenance that plan shall include documentation of such person's or entity's agreement to assume responsibility, or of the owner's obligation to dedicate a stormwater management facility to such person under an applicable ordinance or regulation.
  - (4) Responsibility for maintenance shall not be assigned or



to the responsible person.

- C. Nothing in this section shall preclude the municipality in which the major development is located from requiring the posting of a performance or maintenance guarantee in accordance with

**§ 512-11. Violations and penalties.<sup>4</sup>**

Any person who erects, constructs, alters, repairs, converts, maintains, or uses building, structure or land in violation of this chapter shall be subject to penalties as provided in Chapter 305, Penalties, of the Code of the Borough of Mount Ephraim.

**§ 512-12. When effective.**

This chapter shall take effect immediately upon the approval by the county review agency, or 60 days from the receipt of the ordinance by the county review agency if the county review agency should fail to act.

BOROUGH OF MOUNT EPHRAIM

INTRODUCED: JANUARY 7, 2021

ADOPTED: FEBRUARY 4, 2021

By: Michael Tovin  
Mayor Michael Tovin

Attest: Terry Shannon  
Terry Shannon, Borough Clerk

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1. **Editor's Note: Amended at time of adoption of Code (see Ch. 1, General Provisions, Art. I).**

